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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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08/27/2001

Chan Kim

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EXAMINER

HEINRICHS, CHRISTOPHER P

ART UNIT

PAPER NUMBER

2663

DATE MAILED: 04/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/938,630

Applicant(s)

KIM ET AL.

Examiner

Christopher P. Heinrichs

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

### A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 27 August 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 3-6, 10 and 11 is/are rejected.
- 7) ☒ Claim(s) 2 and 7-9 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 August 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 8/27/2001.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Specification***

1. The abstract of the disclosure is objected to because of the use of legal phraseology. Correction is required. See MPEP § 608.01(b).

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

### ***Drawings***

1. The drawings are objected to because flowcharts of figures 4D and 4E contain erroneous labels. In particular, the decision elements of the flowcharts have "yes" and "no" decisions labeled opposite of what the flowchart elements suggest. For example,

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in figure 4D the decision diamond 431 asks "Determine if third register is empty?" and the "yes" path points to an action rectangle that involves manipulation of the value in the third register. These two drawings have multiple similar instances hence they are unclear and should be modified. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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3. Claims 1 and 4 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. Claim 1 recites the limitations "the input subqueue" and "the output subqueues" in lines 9-10 and 15-16, respectively. There is insufficient antecedent basis for these limitations in the claim, rendering the role of the subqueues in the claim unclear. It is suggested that the input and output subqueues be introduced and their roles be described in the claim before the noted references to them.

5. Claim 4 recites the limitation "when the pointer is forwarded from the input subqueue to the corresponding output subqueue" in lines 1-3. There is insufficient antecedent basis for this limitation in the claim.

6. Claim 4 describes method steps that should happen when this pointer forwarding occurs, but nowhere in claims 1 or 3 is the pointer forwarding described. This renders the rest of claim 4 unclear. Furthermore, the pointer forwarding is from an input subqueue to an output subqueue, both of which are referred to in claim 1 but with a lack of antecedent basis. It is suggested that the forwarding of the pointer be described in either or both of claims 1 or 3 so that the scope of claim 4 and the role of the forwarding of the pointer in the claim can be understood.

***Claim Rejections - 35 USC § 102***

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claims 1 and 3 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent #6,144,662 to Colmant et al.

9. With regard to claim 1, Colmant discloses an apparatus comprising an input subqueue reading means (fig 1a item 111) for reading out data inputted thereto (ATM packet, col 6 lines 25-27), selecting one bit from an output port bitmap at a time (lines 31-39, wherein the destination is only output port 501) and outputting output port information of one bit (the assigned bitmap is sent to the switch controller, col 6 lines 46-47) and class information (delivers storage group address, col 6 lines 60-63) as a data stream together with an enable signal (presence of data enables receiving entity to use it, hence transmitted data itself is the enable signal), wherein when ready data (ATM packet noted above) is presented in the input subqueue (input port 101), the input subqueue reading means also reads out the input subqueue prior to the completion of

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all data processing (note the order of operation – ATM packet enters the input controller, hence the input controller reads out the subqueue, before the processing of the header for output port bitmap, as noted above, which constitutes data processing) and continuously sustains its output data stream (col 6 lines 46-49, bitmap is sent to switch controller, payload is delivered to corresponding input router – no discontinuity between the two is disclosed, hence the stream made up of the two is sustained).

Colmant also discloses a queue number encoding means (fig 1a item 74) for encoding the bitmap type of output port information (col 6 lines 65 – 67, sum of logical ones is calculated) provided thereto from the input subqueue reading means (col 6 lines 64-65), creating a queue number (first counter is set, item 79 of fig 1a, col 7 lines 1-2) of the output subqueues (figs 1a and 1b, storage cells 6001-6128 and items 261 and 268 constitute subqueues) based on the encoded output port information (sum of logical ones) and the class information (group address, col 7 lines 1-2, and fig 1a item 78) and outputting the same together with an enable signal (see above), and an output subqueue writing means (fig 1a item 18, output queue access manager) for writing an assigned non-use address (storage cell number, col 7 lines 55-58, to be populated by a packet payload) of the output subqueues in a tail address of corresponding output subqueue (fig 1a item 261), responsive to the information from the input subqueue reading means (in convenience with the bitmap, received by the switch controller, col 7 lines 58-59, received as noted in col 6 lines 46-47) and replacing a subsequent tail address of the corresponding output subqueue (fig 1a item 262) with a newly assigned non-use address (new storage cell number, the new storage cell to be populated by a

packet payload) , thereby writing a corresponding pointer (payload address) in the corresponding output subqueue (col 7 line 65 – col 8 line 3).

10. With regard to claim 3, Colmant discloses all aspects of the apparatus of claim 1 and further discloses that the pointer indicating an address in which data is stored (payload address) is first stored (payload address received, col 7 lines 55-57) and forwarded (payload address is written, col 7 lines 55-57 – since this address is received and forwarded, two operations that cannot occur exactly simultaneously, it must be at least temporarily stored in the output subqueue writing means) to the output subqueue based on the output port bitmap (in convenience... - as noted in the rejection of claim 1) and the class (received storage group address) of the read data (ATM packet) wherein when the data is multicast data, the same pointer is duplicated to be forwarded to a plurality of output queues (col 7 lines 61-64).

11. Claim 5 is rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent #6,789,176 B2 to Uriu et al.

12. With regard to claim 5, Uriu discloses a multicasting method comprising the steps of storing a pointer indicating an address (alpha, col 5 lines 35-36) in which data (fig 1 item 100) is stored in an input subqueue (cell buffer module, fig 1 item 1) and forwarding the same to an output subqueue ("notifies", col 5 lines 46-50) based on an output port bitmap (TAG, fig 2) and a class of the data (bit MC of fig 2 – denoting multicast class or



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unicast class), wherein when the data is multicast data ( $MC = 1$ ), the same pointer is duplicated to be forwarded (as depicted in fig 1, step S03) to a plurality of output subqueues ( $RC0..RCn$ , fig 1, and col5 lines 51-53); and selecting one bit for the data read out of the input subqueue ("SET", fig 3 step S13, data corresponds to alpha next to MCTR 21) at a time to create a bitmap stream selected only one bit ("UNMATCHED" after S15, step S16), when the pointer is forwarded from the input subqueue to the corresponding output subqueue (noted above), wherein in case ready data (ATM cell) is presented in the input subqueue, the data stored in the input subqueue is read out before being processed all data (the notification that another multi-address line atm cell has been read is waited for indicates all data has not been processed, col 6 lines 53-54), thereby preventing a waiting time between data of the input subqueue from being occurred (the same processing as previously performed is thereafter repeated, col 6 lines 54-55, no delay is cited).

13. Claims 6 and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent #5,923,654 to Schnell.

14. With regard to claim 6, Schnell discloses a shared memory switch (see title) that performs a method wherein a final number (last byte location, col 16 lines 30-31) by which each address is to be read out for multicasting is stored (RPTR is retrieved from the block (col 19, line 51), therefore it must have been stored) the addresses of a first predetermined memory (WPTR), a number reading out a corresponding address at a

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time is stored in a second predetermined memory distinct from the first predetermined memory (RPTR), allowing a read value to be increased (col 19 lines 61-64, and fig 9B item 924) at each instant of the reading of the corresponding address of the shared memory (fig 9B item 916), wherein the increased value is compared with the final number (fig 9B item 926), if the increased value is less than the final number the increased value is increased by one ("N" of item 926, after which sequence begins again and at step 924 RPTR is again modified) and if the increased value is equal to the final number ("Y" of item 926) the increased value is set to be zero (clear RPTR, fig 9B item 928) to thereby allowing the address of the shared memory (BUFFERm, line 52) to be returned to an unused address list (circular buffer, unused because it is empty – col 20 line 2).

15. With regard to claim 11, Schnell discloses a computer readable medium (ROM, col 9 lines 19-22) that stores the method elements of claim 11, which are the same as those of claim 6.

### ***Claim Rejections - 35 USC § 103***

16. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

17. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

18. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent #6,144,662 to Colmant et al. in view of U.S. Patent #6,789,176 B2 to Uriu et al.

19. Colmant discloses all aspects of the apparatus of claim 3 but fails to disclose the limitations of claim 4. However, Uriu discloses selecting one bit for the data read out of the input subqueue ("SET", fig 3 step S13, data corresponds to alpha next to MCTR 21) at a time to create a bitmap stream selected only one bit ("UNMATCHED" after S15, step S16), when the pointer is forwarded from the input subqueue to the corresponding output subqueue ("notifies", col 5 lines 46-50), wherein in case ready data (ATM cell) is presented in the input subqueue, the data stored in the input subqueue is read out before being processed all data (the notification that another multi-address line atm cell has been read is waited for indicates all data has not been processed, col 6 lines 53-54), thereby preventing a waiting time between data of the input subqueue from being occurred (the same processing as previously performed is thereafter repeated, col 6 lines 54-55, no delay is cited). It would have been obvious to one ordinarily skilled in the art at the time of the invention to include the device operation disclosed by Uriu with the apparatus disclosed by Colmant to arrive at the invention of claim 4. The motivation

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to do so would have been to use the compact procedure taught by Uriu to ensure the pointer is forwarded to all output subqueues.

20. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S.

Patent #6,789,176 B2 to Uriu et al.

21. Uriu fully discloses all of method elements of claim 10 as set forth in the rejection of claim 5 but fails to explicitly disclose that the method (functions) be stored in a computer readable medium. However, it would have been obvious to one ordinarily skilled in the art at the time of the invention to record the functions disclosed by Uriu onto a computer readable medium. The motivation to do so would have been to execute the method disclosed by Uriu using the system disclosed by Uriu in a repeatable fashion.

### ***Allowable Subject Matter***

22. Claims 2 and 7-9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher P. Heinrichs whose telephone number is

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571-272-8397. The examiner can normally be reached on Monday through Friday, 8:30am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Ngo can be reached on 571-272-3139. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

C. Heinrichs  
A.U. 2663

  
RICKY NGO  
PRIMARY EXAMINER

4/18/05